inundations, may be much less fertile than the ordinary pink-flowered plant of less inundated situations. That it has not completely lost its fertility, however, is shown by good achenes which are found in a few heads.

II. NEW OR CRITICAL SPECIES OR VARIETIES OF RANUNCULUS.

RANUNCULUS PURSHII Richardson, var. **prolificus**, n. var., ramis valde adscendentibus 7–50-floris; foliis bracteiformibus simplicibus vel subsimplicibus numerosissimis, inferioribus 1–4 cm. longis.

Branches strongly ascending, 7–50-flowered: the simple or subsimple bracteal leaves numerous; the lower 1–4 cm. long.— MAGDALEN ISLANDS: wet meadow, Grindstone, July 22, 1912, *Fernald, Bartram, Long & St. John*, no. 7482 (TYPE in Gray Herb.).

Similar specimens referred in the herbarium sometimes to *R. Purshii*, sometimes to *R. sceleratus*, and by some collectors suggested as a hybrid of these two species, have been examined from Michigan and Montana. On the Magdalen Islands, where this plant forms a characteristic large colony in a meadow, no *R. sceleratus* has been found; and the plant there seems to be a definite, though extreme, variation from *R. Purshii*. In the typical form of the species the branches are prostrate or only slightly ascending and bear only 1–4 flowers, and the simple or subsimple bracteal leaves, when present, are rarely more than one or two in number and very small.

RANUNCULUS FLAMMULA AND R. REPTANS IN NORTH AMERICA.— Although often treated as a variety of *Ranunculus Flammula* L., *R. reptans* L. seems to merit recognition as a species. It is of general distribution in boreal regions, while *R. Flammula* of temperate Eurasia is known in North America only from southeastern Newfoundland, where it is associated with many other typical western European species unknown elsewhere in North America, and on the Pacific slope from southern British Columbia to California. Slender extremes of *R. Flammula* and the coarsest extremes of *R. reptans* somewhat simulate one another but all so-called transitional material seen by the writer is definitely referable to one or the other species in its floral characters and entirely consistent in geographic range. The usually stout ascending or merely trailing *R. Flammula* of Europe, Newfound-

land, and Pacific North America has the inflorescence, when well developed, a loose corymbose cyme with 2–30 flowers; the sepals are 3–4 mm. long; the broadly obovate or roundish petals 4–7 mm. long, 4–7 mm. broad, sessile or nearly so, 9–13-nerved; stamens 25–50; carpels 25–50, forming globose fruiting heads 3.5–5 mm. long; and the achenes are merely short-tipped. The slender, ordinarily filiform and repent branches of *R. reptans*, on the other hand, bear solitary flowers; the sepals are 2–2.8 mm. long; the petals narrowly obovate to oblong, 2.5–5 mm. long, 1–3 mm. broad, usually with a definite claw, 3–9-nerved; stamens 10–20; carpels 15–20, forming a hemispherical or spherical fruiting head 1.5–3 mm. long; and the achenes are distinctly beaked.

R. Flammula, var. *intermedius* Hook. has long passed as a plant transitional between *R. Flammula* and *R. reptans*, and in recent years it has been made to include very diverse elements. Thus, in the *Synoptical Flora* it is said to be the same as *R. Flammula*, var. *unalaschcensis* Ledeb., to have "akenes of the type or more beaked," and to occur from "Shore of Lake Ontario [1] to California and Oregon and northward. (N. Asia, Eu.) Largest forms from western coast, nearly approaching the type; very slender and linear-leaved as well as small broader-leaved forms pass into **Var. reptans**, E. Meyer." [2] Examination of the material upon which this statement was based shows that the Lake Ontario plant, the "very slender and linear-leaved" form, has the floral and achenial characters of *R. reptans;* the Newfoundland plant of Robinson & Schrenk is typical *R. Flammula;* and the California and Oregon material examined by Gray, the "largest forms from western coast", has the flowers and fruit, likewise, of *R. Flammula*. This variety, thus made up of elements belonging on the one hand to *R. Flammula*, on the other to *R. reptans*, was naturally described by Gray, as having "akenes of the type or more beaked." The status of this very mixed variety was well characterized in the 7th edition of Gray's *Manual*, where *R. Flammula* was said to pass "through an undefinable var. INTERMEDIUS Hook., into var. **reptans**." [3]

It is quite certain that, when he published his *R. Flammula*, var. *intermedius* [published as *intermedia*], Hooker had no thought of including the *R. Flammula* of the Pacific slope, for he distinctly wrote: "It does not appear that any of the varieties are found on the Rocky

"[1] Eastward to St. John's, Newfoundland, *Robinson & Schrenk*," etc.

[2] Gray, Syn. Fl. 1. pt. 1, 26, 27 (1895).

[3] Robinson & Fernald in Gray, Man. ed. 7, 395 (1908).

Mountains, nor to the westward of them."[1] Hooker had three varieties of *R. Flammula:* α *major* which is the endemic American *R. laxicaulis* (T. & G.) Darby; "β. *intermedia;* caule repente gracili, foliis anguste lanceolatis superioribus linearibus integerrimis"; and γ *filiformis,* which was typical *R. reptans* L. The two latter, vars. *intermedius* and *filiformis,* he had from "gravelly banks of rivers from Canada to lat. 69°." Thus it is clear that Hooker was merely separating from the true slender-leaved *R. reptans* (his *R. Flammula* γ *filiformis*) a broader-leaved but repent slender plant of Canadian river banks, a plant scarcely separable from *R. reptans,* but somewhat broader-leaved than the typical form of the species.

Similarly the name *R. Flammula,* var. *unalaschcensis* (Bess.) Ledeb. has been taken up for the western form of *R. Flammula,* but in the Gray Herbarium, where there are several sheets from the Aleutian Islands, there is none which is not clearly referable to *R. reptans,* either narrow- or broad-leaved. The only description of var. *unalaschcensis* was in Flora Rossica and there is nothing in it to indicate that it is more than an extreme of *R. reptans.* Ledebour recognized true *R. reptans* with filiform or filiform-linear leaves as *R. Flammula* γ and contrasted with it a var. "β. caule prostrato radicante, foliis latioribus integerrimis, rarius unidentalis" which included "*R. unalaschcensis,* Besser in *herb. Zeyheri.*"[2] This, judging from various specimens from Unalaska and the other Aleutian Islands, was, then, a form of *R. reptans.* This broad-leaved extreme of *R. reptans* is

R. REPTANS, var. OVALIS (Bigel.) T. & G. Fl. N. A. i. 16 (1838). *R. filiformis,* var. β. *ovalis* Bigel. Fl. Bost. ed. 2, 224 (1824). *R. unalaschcensis* Bess. in Ledeb. Fl. Ross. i. 32, as syn. (1841). *R. Flammula,* var. *unalaschcensis* (Bess.) Ledeb. acc. to Regel, Bull. Soc. Nat. Mosc. xxxiv. pt. 2, 41 (1861). *R. reptans,* var. *strigulosus* Freyn, Deutsche Bot. Monatschr. viii. 181 (1890).

RANUNCULUS PYGMAEUS Wahlenb., var. **petiolulatus,** n. var., foliis radicalibus pedatim divisis, foliolis 3 petiolulatis rhomboideo-obovatis palmatis laciniis 3–5 oblongis vel valde divisis; capitulis fructiferis 5–7.5 mm. longis.

Radical leaves pedately divided; the 3 leaflets petiolulate, rhombic-obovate, palmate, with 3–5 oblong lobes or deeply divided: fruiting heads 5–7.5 mm. long.— QUEBEC: damp mossy hollows in shade of amphibolite rocks, altitude 950–1000 m., Mt. Albert, Gaspé County, August 8 & 10, 1905, *Collins & Fernald,* no. 82 in large part (TYPE in Gray Herb.).

[1] Hook. Fl. Bor.-Am. i. 11 (1829).
[2] Ledeb. Fl. Ross. i. 32 (1842).

Typical *R. pygmaeus* of the Arctic regions, Labrador and the Canadian Rocky Mountains has the basal leaves merely lobed, not divided to the base, and the fruiting heads are 3–5 mm. long. In its basal leaves var. *petiolulatus* is quite like the rare Rocky Mountain species, *R. Grayi* Britton, but it has the small petals and achenes of *R. pygmaeus*. On Mt. Albert collections were made on two days at different points and all the material distributed under one number. The full sheet retained at the Gray Herbarium contains a few plants of true *R. pygmaeus*, but most of the specimens (presumably from a different station) are the variety.

Ranunculus pedatifidus J. E. Sm., var. **leiocarpus** (Trautv.), n. comb. *R. affinis* R. Br. in Parry, 1st Voy. Suppl. App. 265 (1824). *R. affinis*, var. *leiocarpa* Trautv. in Middendorf, Reise in Sibir. i. 62 (1847).

All the material seen by the writer from Arctic America, the Labrador Peninsula, and the Hudson Bay region, including a duplicate type of *R. affinis* from Melville Island, has glabrous achenes and characteristic pedately many-cleft basal leaves. In the Rocky Mountain region this plant is rare, the common plants there being true *R. pedatifidus*, with pedately cleft basal leaves and pubescent achenes, and var. *cardiophyllus* (Hook) Britton,[1] with the basal leaves mostly uncleft and merely crenate or dentate. In Siberia, too, there are apparently large areas where only the glabrous-fruited variety is found. This, at least, is indicated by Trautvetter's note: "In speciminibus taimyrensibus omnibus Ranunculi affinis R. Br. ovaria prorsus glabra sunt; attamen in herbario horti botanici Petropolitani inter specimina daurica ejusdem speciei nonnulla inveni, in quibus carpella aeque pilis prorsus carent."

Ranunculus repens L., var. **plenifiorus**, n. var., foliis basilaribus ternatis, foliolis suborbicularibus basi rotundatis vel subcordatis margine crenatis vel late obtuseque dentatis; floribus plenis.

Basal leaves ternate; the suborbicular leaflets rounded or subcordate at base, the margin crenate or with broad obtuse teeth: flowers double.— Frequent in old gardens, and tending to become naturalized in meadows, roadside-ditches, etc. Type: well established in meadows and along roadsides, Oneida, Herkimer County, New York, May 30, 1900, *J. V. Haberer*, no. 1530 in Gray Herb.

[1] Records of this plant from Quebec and Labrador seem to have been based on *R. Allenii* Robinson, Rhodora, vii. 220 (1905).

This plant is generally called in horticulture *R. repens*, var. *flore-pleno* but the latter name (if it can be accepted as a valid name) belongs to the double-flowered European form of *R. repens* with the bases of the leaflets cuneate to subtruncate, as in true *R. repens*, and the teeth and segments elongate and subacute to acuminate. The history of var. *pleniflorus* is obscure. It is found in old gardens and as a somewhat naturalized weed in eastern America; but such illustrations of the double-flowered *R. repens* of Europe as the writer has seen, as far back as Gerard's *Herball* (ed Johnson, 1633), where the plant is figured as *Ranunculus dulcis, multiplex,* and Besler's *Hortus Eystettensis* (1613) where it is called *Ranunculus hortensis, multiflorus,* show the characteristically cuneate-based leaflets of *R. repens*.

III. SOME COLOR FORMS OF AMERICAN ANEMONES.

ANEMONE RIPARIA Fernald. This northern riverbank and shore species differs constantly from the more southern *A. virginiana* in several characters as well as its northern range and very early flowering season (from May to July). Contrasted with *A. virginiana* it has the leaf-segments usually more cuneate at base, although this character is by no means absolute; anthers 0.7–1.2 mm. long, those of the more southern *A. virginiana* running from 1.2–1.6 mm. long; its fruiting head 7–11 mm. thick, as contrasted with *A. virginiana* in which the heads are 1.2–1.5 cm. thick; and the subulate pale styles ascending or subascending in fruit, as contrasted with the firmer, more divergent styles of *A. virginiana*. The two species are sometimes confused in flower owing to the fact that each presents a distinctly sepaloid or a pronouncedly petaloid perianth. *A. riparia*, in fact, appears in three well pronounced forms as follows:

A. RIPARIA Fernald, RHODORA, i. 51, t. 3. (1899), typical form.— Sepals petaloid, white; at least the inner broadly oblong to oval, with rounded tips, 1.3–2 cm. long, 0.8–1.5 cm. broad.— Calcareous or slaty ledges, rarely in swamps, Gaspé County, Quebec, to British Columbia, south to Cape Breton and Pictou County, Nova Scotia, King's County, New Brunswick, central Maine, Franklin County, Massachusetts, northern Fairfield County, Connecticut, Sullivan and Tompkins Counties, New York, northern Illinois, Minnesota, etc.— Flowers late May to July.

Forma **rhodantha**, sepalis rubris.